SNAKEY POINT
Gibson and Pike Counties

2005 Fish Management Report

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EXECUTIVE SUMMARY

- Snakey Point is a 247-acre marsh located about 1 mi north of Oakland City in Gibson County. Most of Snakey Point lies within the boundary of the Patoka River National Wildlife Refuge.

- The standard fisheries survey was conducted on April 25 through May 3, 2005. Specific largemouth bass sampling was conducted on May 11 and May 25, and an aquatic vegetation survey was conducted on August 15.

- The water conductivity on April 25 and May 3 was 854 and 1,031 µS. Dissolved oxygen was 9.0 ppm at the surface. The maximum depth observed was 3.0 ft. Submergent aquatic vegetation species observed were Eurasian watermilfoil and bladderwort. Emergent species covered 74% of Snakey Point and the plants observed were spatterdock, buttonbush, American lotus, cattail spp., creeping water primrose, and marsh pennywort.

- A total of 553 fish, representing 19 species, was sampled that weighed an estimated 259.87 lbs. Bluegill ranked first by number followed by gizzard shad, redear sunfish, and largemouth bass. Bowfin ranked first by weight followed by gizzard shad, shortnose gar, largemouth bass, and common carp.

- Snakey Point has quality fishing opportunities for largemouth bass, redear sunfish, and black crappie. Good numbers of bluegill in the 6.0 to 7.0 in range were sampled, but bluegill larger than 7.0 in were scarce.

- The largemouth bass regulations should be changed to an 18-in length limit and two bass bag limit.

- Specific largemouth bass sampling should be conducted biennially in March or April starting two years after the new bass regulations are enacted.

INTRODUCTION

Snakey Point is a 247-acre marsh located about 1 mi north of Oakland City in Gibson County. Approximately 80% of Snakey Point lies within the boundary of the Patoka River National Wildlife Refuge (PRNWR). The remaining 20% is privately owned and is actively being pursued for purchase by the PRNWR. The South Fork of the Patoka River bisects Snakey Point and 201-acre Buck's Marsh. There are two unimproved boat ramps of which one is owned by the PRNWR and one is privately owned. There are no motor restrictions, but an idle speed is enforced. Snakey Point's water level can fluctuate as much as 2 ft during flooding or drought conditions. Snakey Point is known locally for its good crappie and largemouth bass fishing and receives heavy fishing pressure as observed by the district fisheries biologist and PRNWR manager. There are no fees associated with accessing or fishing the marsh.

Snakey Point was previously surveyed in 1996 during a project that entailed conducting fisheries surveys on water bodies within the proposed PRNWR purchase boundary. The fisheries survey was conducted in August and daytime pulsed DC electrofishing was the only fish sampling method used. Catch rates were low for all species due to the water's high conductivity of 1,281 µS. Sixteen species were sampled and bluegill dominated the collection by number followed by redear sunfish and warmouth. Bluegill growth was average, while redear sunfish growth was average for ages 1 and 2 and below average for ages 3 through 5. Only 17 largemouth bass were sampled.

METHODS

The standard fisheries survey was conducted on April 25 through May 3, 2005. The specific largemouth bass sampling was conducted on May 11 and May 25, and the aquatic vegetation survey was completed on August 15. These surveys were performed due to concerns from PRNWR personnel of heavy fishing pressure and perceived over-harvest of bass. All the surveys were completed under DFW work plan 202478. Some physical and chemical characteristics of the water were measured according to DFW guidelines (2001). Only observed plants were recorded during the aquatic vegetation survey due to the low water level. The emergent vegetation surface coverage was measured with the aid of aerial photographs and ArcGIS 9.1 software. A GPS was used to record most of the sampling locations. The GPS did

malfunction during the survey so not all the sampling coordinates were recorded.

The standard fish survey was completed according to the standard sampling guidelines, except for the reduction in gill net sets due to the shallow, woody debris filled water. Fish sampling effort for the standard fisheries survey consisted of 0.75 h of pulsed DC night electrofishing with two dippers, four trap net lifts, and one experimental-mesh gill net lift. The extra largemouth bass sampling effort consisted of 3.01 h of pulsed DC day electrofishing. Day electrofishing was done instead of night electrofishing due to the shallow, woody debris filled water. All fish were measured to the nearest 0.1 in TL. Average weights for fish by half-in groups for Fish Management District 7 were used to estimate the weight of all fish. Scale samples were taken from a subsample of game fish for age and growth analysis. Proportional stock density (PSD) and relative stock density (RSD) indices were used to evaluate the largemouth bass and bluegill populations (Anderson and Neumann 1996). The bluegill fishing potential index (BGFP) was used to evaluate the quality of the bluegill fishing (Ball and Tousignant 1996).

RESULTS

Snakey Point's water level was normal during the fish surveys, but was low enough during the aquatic vegetation survey that an outboard motor could not be used. The water conductivity on April 25 and May 3 was 854 and 1,031 µS. Dissolved oxygen was 9.0 ppm at the surface. The maximum depth observed was 3.0 ft. Submergent aquatic vegetation species observed were Eurasian watermilfoil and bladderwort. Emergent species observed were spatterdock, buttonbush, American lotus, cattail spp., creeping water primrose, and marsh pennywort which, combined, accounted for 74% surface coverage.

A total of 553 fish, representing 19 species, was sampled that weighed an estimated 259.87 lbs. Bluegill ranked first by number followed by gizzard shad, redear sunfish, and largemouth bass. Bowfin ranked first by weight followed by gizzard shad, shortnose gar, largemouth bass, and common carp. Other nongame species sampled were 14 spotted gar, 12 warmouth, 12 orangespotted sunfish, 5 brown bullhead, 5 brook silverside, 3 yellow bullhead, 2 longear sunfish, 1 silver carp, 1 smallmouth buffalo, and 1 golden shiner.

A total of 217 bluegill was sampled that weighed 21.75 lbs. They ranged in length from

1.5 to 7.7 in. Bluegill accounted for 39% of the collection by number and 8% by weight. Their catch rates were 254.7/electrofishing h, 6.0/trap net lift, and 2.0/gill net lift. Bluegill growth was similar to 1996 results and was average when compared to the district average. The bluegill PSD and RSD7 were 22 and 4. The BGFP ranked bluegill fishing as marginal with a score of 11 (maximum = 40).

A total of 146 gizzard shad was sampled that weighed 52.49 lbs. They ranged in length from 4.6 to 13.3 in. Gizzard shad relative abundance by number and weight was 26% and 20%. Their catch rates were 129.3/electrofishing h, 0.3/trap net lift, and 48.0/gill net lift.

Forty-one redear sunfish were sampled that weighed 11.67 lbs. They ranged in length from 3.5 to 8.7 in with 44% being at least 8.0 in. Redear sunfish relative abundance by number and weight was 7% and 5%. Redear catch rates were 36.0/electrofishing h, 2.8/gill net lift, and 3.0/trap net lift. Redear grew at an average rate for ages 1 through 3, while growth for ages 4 through 6 was at the low end of the district's average range. Their growth was approximately an inch faster for all ages compared to the 1996 results.

Twenty-seven largemouth bass were sampled during the standard fisheries survey and an additional 32 bass were sampled during the specific largemouth bass sampling. They ranged in length from 4.6 to 18.7 in and accounted for 5% of the sample by number and 10% by weight. Catch rates were 34.7/night electrofishing h, 10.6/day electrofishing h, 1.0/gill net lift. No bass were captured in trap nets. Bass grew exceptionally fast at Snakey Point as indicated by the back-calculated lengths for ages 3, 4, 5, and 6 of 12.5, 14.0, 15.3, and 16.6 in. The largemouth bass PSD was 58, and the RSD14, 15, and 18 values were 22, 17, and 2.

Twenty-five black crappie and 13 white crappie accounted for 7% of the sample by number and 3% by weight. Black crappie ranged in length from 5.5 to 13.9 in, while white crappie ranged in length from 1.9 to 11.7 in. Fifty percent of the black crappie and 15% of the white crappie measured 9.0 in and larger. Catch rates for black crappie were 4.0/electrofishing h, 4.8/trap net lift, and 4.0/gill net lift. White crappie catch rates were 9.3/electrofishing h, 1.3/trap net lift, and 1.0/gill net lift. Both species grew faster than the average recorded for other crappie populations in the district.

DISCUSSION

Snakey Point's high water conductivity limited the effectiveness of the electrofishing boat which reduced the number of fish sampled during this survey compared to other lakes with "normal" water conductivity. However, comparisons can be made with other lakes with similar conductivities such as Bluegrass and Loon Pits at Blue Grass Fish and Wildlife Area. The largemouth bass electrofishing catch rate of 34.7/h was substantially lower than the 145.1/h and 68.5/h recorded at Bluegrass and Loon Pits which indicates the bass population is smaller than it should be. Even Widgeon Pit, a similar water type with a higher conductivity (1,823 µS) than Snakey Point, had an electrofishing catch rate of 51.4/h. Normally, electrofishing efficiency decreases with increasing conductivity. Day electrofishing efforts also support the theory that bass numbers are suppressed because the catch rate was only 10.6/h. Poor recruitment and/or over-harvest are limiting the quality bass fishing potential.

Snakey Point has an abundant forage base resulting in good bass growth at all ages. The largemouth bass size structure was good as indicated by the stock density indices. It is recommended that the current 14-in length limit and five bass bag limit be changed to a 18-in length limit and two bass bag limit. This new regulation will increase the population size and produce larger bass by protecting small bass and increasing recruitment. Increasing the bass population will also increase the predation on bluegill which should help improve the size structure of the bluegill population. Specific largemouth bass sampling should be conducted biennially in March or April two years after the new bass regulations are enacted. Public approval of the new bass regulation should be good. This same regulation was enacted on Bluegrass and Loon Pits in 2003 and a 2004 angler creel survey documented that 84% and 90% of the anglers at each respective pit liked the new regulation (Doll 2005).

Snakey Point has quality fishing opportunities for largemouth bass, redear sunfish, and black and white crappie. Good numbers of bluegill in the 6.0 to 7.0 in range were sampled, but bluegill larger than 7.0 in were scarce. The bluegill fishing is classified as marginal, but the redear sunfish and crappie populations do provide quality fishing opportunities. The redear sunfish electrofishing catch rate was good at 36.0/h and 44% of the redear sampled were 8.0 in and larger. Crappie catch rates were also good, their growth was above average, and 65% of the black and white crappie combined were 9.0 in and larger.

RECOMMENDATIONS

- The largemouth bass regulations should be changed to an 18-in length limit and two bass bag limit.

- Specific largemouth bass sampling should be conducted biennially in March or April starting two years after the new bass regulations are enacted.

LITERATURE CITED

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APPENDIX 1

Fish Management Survey Data